Fort Sill's SMART Lab Provides Unique Capabilities

By Lieutenant Colonel (Retired) Rocky G. Samek, AC

The Systems Modeling, Analysis, Requirements and Test (SMART) Laboratory brings a unique capability to Fort Sill, Oklahoma. Deploying and non-deploying active Army, National Guard and Marine units can use its resident functions and in-house experts to hone their multiple-launch rocket system (MLRS) fire control panel, command and control (C^2), and communications digital skills. Also, Army hardware programs—from the high-mobility artillery rocket system (HIMARS) to the advanced FA tactical data system (AFATDS)—can use the SMART Lab to reduce costs and, ultimately, field a better product to the warfighter in less time.

This article provides information on where the SMART Lab is located, its unit training and testing capabilities, and future initiatives upon which the lab is focused.

Fort Sill established the SMART Lab in 1998 as a central site for the rocket and missile development community to exercise fire mission threads and develop procedures for firing the Army tactical missile system (ATACMS). The Army's range of tactical hardware and communications architectures that differed from theater to theater drove the need for the facility.

Since being established, the SMART Lab has expanded its focus to include exercising fire mission threads before live-fire ATACMS and rocket shots; participating in formal limited user tests for the M270A1 MLRS launcher, HIMARS and the guided MLRS (GMLRS) rocket; and unit training in fire mission processing for both ATACMS and rockets.

A Fort Sill Asset. The SMART Lab is located in a large bay on the east end of I-See-O Hall near the joint fires and effects trainer system (JFETS). The Training and Doctrine Command (TRADOC) Systems Manager for Rocket and Missile Systems (TSM RAMS) provides SMART Lab oversight while the Program Manager for Precision Fires Rocket and Missile System (PM PFRMS) provides much of the funding to keep the lab staffed and operating. The SMART Lab consists of commercial and tactical computers, communications

Photo by Fred W. Baker III

devices (radios, modems and antennae) and cabling configured similarly to that in tactical MLRS units.

Although called a "lab," Soldiers easily recognize the equipment in it. For example, it is common to see an M270A1 or HIMARS launcher parked outside, traversing and elevating during digital dry fire missions, while Soldiers inside the lab are refining their skills with the latest version of AFATDS software. The lab can provide in-house individual training support for up to 30 personnel.

Unit Focus. The SMART Lab is modular and can be tailored to specific unit training requirements. Although routinely configured as a battalion headquarters, the SMART Lab easily can be configured as a higher- or lower-echelon operational facility in any number of combinations. This flexibility allows commanders to target specific training objectives when their units arrive, focus on areas needing the most emphasis and make the most of the training time.

Recently, the lab gained access to the Defense Research and Engineering Network (DREN). DREN is a sophisticated Department of Defense (DoD) long-haul telecommunications backbone and allows the SMART Lab to distribute training to multiple units that can access DREN.

Expertise. Staffed with military, government civilian and support contractor personnel, SMART Lab offers expertise in MLRS and C^2 software operations and troubleshooting at the individual through unit levels. From AFATDS database construction to exercising ATACMS and rocket mission threads, the personnel in the SMART Lab can help FA MLRS units at the individual and collective levels.

Many who support the SMART Lab have been overseas to support software fieldings and mobile training teams (MTTs) in both combat and non-combat zones. Personnel from the SMART Lab recently were deployed to support the Coalition Forces Land Component Commander (CFLCC) in Iraq.

Test Facility. Not long ago, the Central Technical Support Facility at Fort Hood, Texas, chose the SMART Lab as an offsite test facility. This allows software block mission threads testing at Fort Sill instead of Fort Hood for the M270 and M270A1 launchers, HIMARS and AFATDS.

The savings in personnel time and travel dollars is evident; however, the benefits of improved software product and reduced turn-around times may not be so obvious. Now, Fort Sill-centered fire support programs can test-fix-test in timelines not achievable until the SMART Lab was selected as a testing facility. The Soldier gets an improved warfighting capability with fewer bugs in less time.

Future Capabilities. The SMART Lab has focused much of its collective expertise and effort on a high frequency (HF) radio and antenna for possible integration into the MLRS and HIMARS launchers. Integrating this ability will give the launcher long-range capabilities not achievable with the frequency modulation (FM) radios currently used on the launchers.

Testing has been promising as communications threads have been exercised from Fort Sill to White Sands Missile Range, New Mexico, a distance of more than 700 miles. An integrated long-term solution requires more work. SMART Lab personnel are at the forefront of this exciting new capability.

Another effort involving the SMART Lab is onboard enhanced C^2. This capability will allow the M270A1 or HIMARS to

receive a digital fire mission directly from a sensor (e.g., Apache helicopter, Special Operations Forces, etc.) and compute the tactical and technical firing solution. The rocket and missile community currently does not have this sensor-to-shooter capability. Enhanced C^2 is envisioned for specific mission threads under specific tactical scenarios, so not all launchers will receive this software upgrade.

Fort Sill just received its first non-line-of-sight launcher system (NLOS-LS) container/launch unit (CLU), and the SMART Lab will be a test and integration facility for this future combat system (FCS) weapon. SMART Lab personnel will validate system requirements, develop and refine crew procedures and develop training to support the initial fielding to the experimental brigade combat team (EBCT) in FY08.

Commanders wishing to schedule training in the SMART Lab or discuss fire mission threads and associated launcher behavior during fire mission processing can contact Sergeant First Class Alan Muilenburg, the NCO-in-Charge for Command, Control, Communications, Computers and Intelligence (C^4I) in TSM RAMS, at commercial (580) 442-6607 or DSN 639-6607 or email him at alan.muilenburg@sill.army.mil.

Lieutenant Colonel (Retired) Rocky G. Samek, Acquisition Corps (AC), is a contract Senior Military Analyst supporting the Training and Doctrine Command (TRADOC) Systems Manager for Rockets and Missile Systems (TSM RAMS) in the Futures Development Integration Center (FDIC), Fort Sill, Oklahoma. While on active duty, he was the Assistant TSM RAMS, the job from which he retired in 2004. In previous military assignments, he was the Assistant Project Manager for the 2.75-Inch Rocket Project at Rock Island, Illinois; Assistant Project Manager for Logistics and Manpower and Personnel Integration at Picatinny Arsenal, New Jersey, working on the Crusader Project; and Test Officer at Yuma Proving Ground, Arizona, testing a wide array of current and future indirect and direct fire munitions, ranging in size from 60-mm to 203-mm. In other Army assignments, he was the Plans and Mobilization Officer in the Brigade S3 shop of the Field Artillery Training Center (FATC), Fort Sill, and commanded B Battery, 2nd Battalion, 80th Field Artillery, also in the FATC.

First-Ever JFO CAS Sustainment Training on Fort Sill—Open to All JFOs

On 2 February, the Joint and Combined Integration Directorate (JACI), Fort Sill, Oklahoma, hosted the Army's first close air support (CAS) sustainment training for joint fires observers (JFOs). The one-day training helps maintain a JFO's qualification to observe CAS aircraft and work with a joint terminal attack controller (JTAC) via radio to provide the data the pilot needs to execute CAS missions. The Army JFO will be on the front lines of combat while the JTAC could be miles away from the engagement area, relying on the JFO's eyes and CAS knowledge and experience to provide him the information he needs to control the attack. The instruction includes a class about how to train JFOs at home station, time in the JFO simulator and time with a JTAC on live controls.

For this first iteration of the training, there were two JFOs (13F Fire Support Specialists) who trained on urban CAS. The JFOs provided the JTAC the data for "dry" CAS on Fort Sill "targets" from the rooftop of the Field Artillery School, Snow Hall, employing a B-52 bomber flying over Fort Sill. The B-52, which had no bombs on board, was part of the 93rd Air Wing out of Barksdale AFB, Louisiana. The JFOs observed the targets (buildings on Fort Sill visible from Snow Hall's roof) and worked with maps to provide the exact data needed by the JTAC, who then talked directly to the pilot who simulated attacking the targets.

Historically, bomber pilots don't execute missions via "talk-ons" to the target. However, the 93rd Wing asked to train JFOs at Fort Sill because their B-52s have the new Litening-Airborne Targeting (AT) pods, which allow the pilots to visually acquire urban targets from an altitude of 26,000 feet. The pilots, like the JFOs, are sustaining their skills in readiness for action in the Global War on Terrorism.

Fort Sill is working with the Air Force Rover III manager to buy two kits to enhance Fort Sill's JFO initial and sustainment training. The receive-only kit is a laptop with antennae that allows a JTAC to see the same video the pilot sees with his Litening-AT pod and the displays on the Sniper pod or Predator unmanned aerial vehicle (UAV).

JFO CAS sustainment training will be conducted on Fort Sill every Thursday and is open to JFOs in units worldwide. The venue for the controls will vary. The training may occur at Falcon Range on Fort Sill where aircraft can drop live ordnance on targets or it could be day or night dry CAS in different locations on Fort Sill. Active and Air National Guard units from Oklahoma, Arkansas, Texas and New Mexico will provide A-10s, F-16s, F-18s AT-38s, B-1s and B-52s for the JFO training at Fort Sill.

Units interested in scheduling JFOs for the Fort Sill sustainment training—ideally with JTACs from their aligned air support operations squadrons (ASOS)—can contact Major Bill Peterson in JACI at (580) 442-2353 or DSN 639-2353 or via email at william.peterson1@us.army.mil.

Joint Fires Observer (JFO). The Army and Air Force define a JFO as a "trained service member who can request, adjust and control surface-to-surface fires, provide targeting information in support of Types 2 and 3 CAS terminal attack controls and perform autonomous terminal guidance operations." Type 1 CAS control is used when the JTAC must acquire both the attacking aircraft and the target visually. Type 2 CAS applies when the JTAC cannot visually acquire the target and (or) the attacking aircraft at weapons release. Also during Type 2 CAS control, attacking aircraft may not be able to acquire the mark (or) target before weapons release. Type 3 CAS is when there is a low risk of fratricide and, with the ground commander's approval, the JTAC can grant "blanket" clearance for the attacking aircraft to release their weapons. ("Joint Fires Observer," September-October 2005 edition, online at sill-www.army.mil/famag.)